

**REVISED MAG 1999 SERIOUS AREA PARTICULATE  
PLAN FOR PM-10 FOR THE  
MARICOPA COUNTY NONATTAINMENT AREA**

**EXECUTIVE SUMMARY**



## **REVISED MAG 1999 SERIOUS AREA PARTICULATE PLAN FOR PM-10 EXECUTIVE SUMMARY**

Within the Maricopa County nonattainment area, the National Ambient Air Quality Standards have not yet been attained for three pollutants: particulates (PM-10) carbon monoxide, and ozone. The Maricopa Association of Governments was designated by the Governor of Arizona in 1978 and recertified by the Arizona Legislature in 1992 to serve as the Regional Air Quality Planning Agency to develop plans to address these pollution problems.

In accordance with the 1990 Clean Air Act Amendments, the Maricopa County nonattainment area was initially classified as Moderate for PM-10 particulate pollution. However, on May 10, 1996, the nonattainment area was reclassified to Serious due to failure to attain the particulate standard by December 31, 1994. The Serious Area reclassification was effective on June 10, 1996.

The Clean Air Act requires that a Serious Area Particulate Plan be submitted within eighteen months of the reclassification date. The plan is required to include Best Available Control Measures which are designed to achieve the maximum degree of emissions reduction from a PM-10 source. The Best Available Control Measures are required to be implemented no later than four years after reclassification or by June 10, 2000. Also, the definition of major source is changed from 100 tons to 70 tons per year.

The attainment date for Serious Areas is December 31, 2001. The Clean Air Act also allows the Environmental Protection Agency to extend the attainment date for up to five years if the following requirements are met:

- Attainment by December 31, 2001 is impracticable.
- Compliance with all requirements and commitments in the plan.
- Plan includes the most stringent measures that are included in the plan of any state or are achieved in practice in any state, and can feasibly be implemented in the area.
- Attainment no later than December 31, 2006.

Particulate air pollution can occur throughout the year. The formation of particulate pollution is dependent upon several factors. Among these factors are stagnant masses, severe temperature inversions in the winter, high winds in the summer, and fine, silty soils characteristic of desert locations. In the Maricopa County nonattainment area, fine particulate matter (PM-10) concentrations are elevated during various seasons of the year and under different weather conditions. The variability is due to the diverse composition of PM-10 and the sources contributing to this diversity.

The trend in PM-10 levels for the Maricopa County nonattainment area is presented in Figures ES-1 and ES-2. The annual PM-10 standard is 50 micrograms per cubic meter. In 1996 and 1997, there were five exceedances of the annual standard in each of those years. In 1998, there was one exceedance of the annual standard. The 24-hour PM-10 standard is 150 micrograms per cubic meter. In 1996, there were 11 exceedance days of the 24-hour standard and 12 exceedance days in 1997. In 1998, there were four exceedance days of the 24-hour standard.

Based upon the 1995 base year regional emissions inventory, the primary sources of PM-10 are: Nonroad Sources (construction/earthmoving dust, construction trackout, nonroad engine exhaust, and construction windblown dust) 43.0 percent; Onroad Sources (paved road dust, unpaved road dust, and onroad vehicle exhaust) 32.9 percent; Area Sources (disturbed vacant land and agricultural windblown dust, agricultural dust, other area sources, and residential wood burning) 22.6 percent; and Point Sources 1.5 percent. The sources are depicted in Figure ES-3.

On August 29, 1997, the initial air quality modeling analysis was completed. The modeling did not demonstrate attainment by December 31, 2001 with the committed control measures. A shortfall of a 16.4 percent reduction in PM-10 concentration was identified. Since it appeared that attainment by 2001 was impracticable, an extension request for a later attainment date would be necessary.

On October 29, 1997, the MAG Regional Council took action to direct staff to prepare a request for up to a five-year extension of the attainment date to be included in the Serious Area Particulate Plan for PM-10, for submittal following action by the Legislature. Additional committed measures were needed from the State and local governments to meet the Clean Air Act requirements for the extension request.

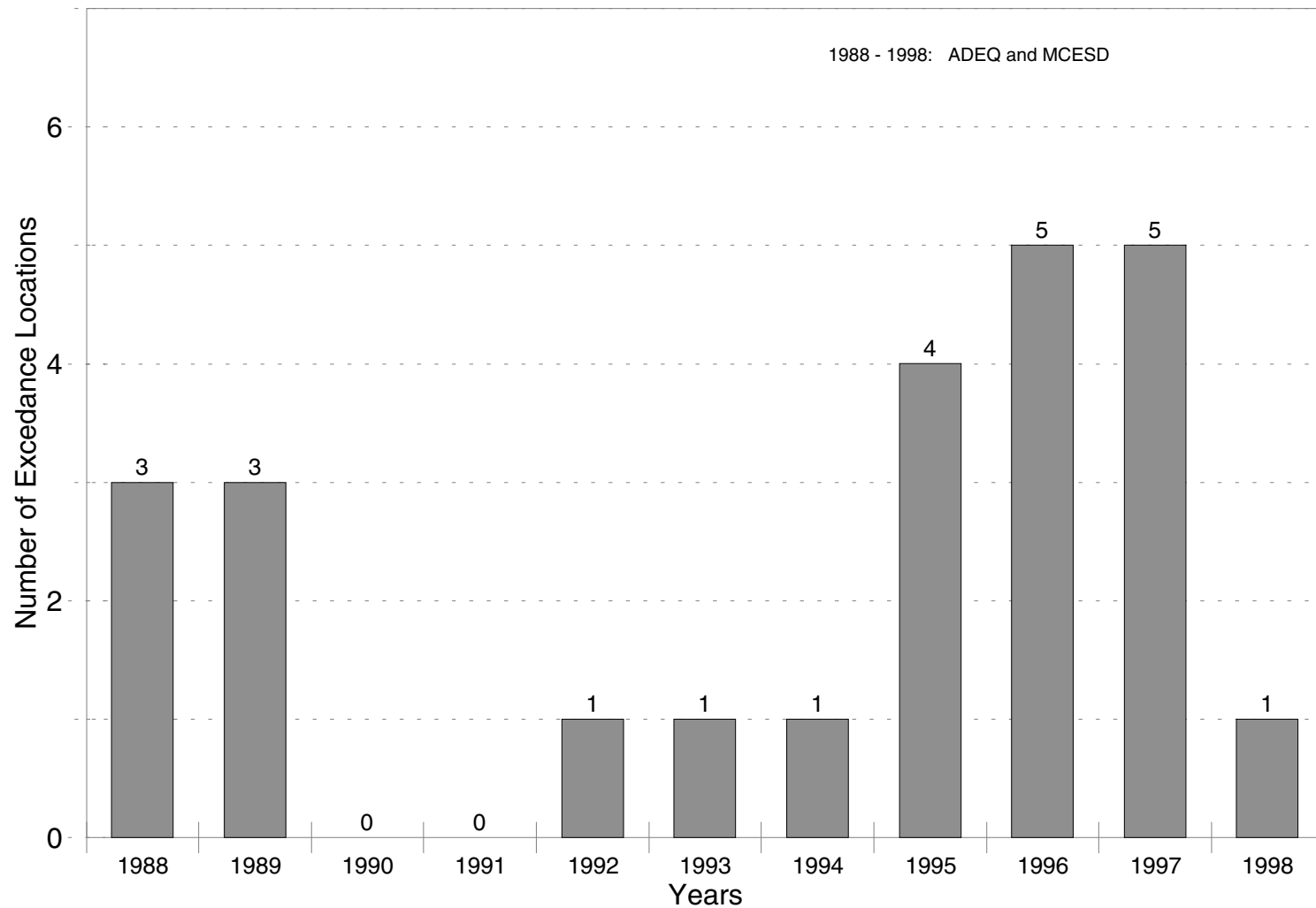
On December 3, 1997, the MAG Regional Council approved the submittal of the Serious Area Particulate Control Measures for PM-10 and Support Technical Analysis to EPA by December 10, 1997. This document contained a total of 49 committed control measures designed to reduce particulate pollution.

During the next year and a half, a rigorous planning effort was conducted to prepare the extension request elements of the plan and to revise the Maricopa County Fugitive Dust Control Rule 310. On June 16, 1999, the Maricopa County Board of Supervisors approved the Revised Rule 310, for inclusion in the Serious Area Particulate Plan for PM-10.

On June 23, 1999, MAG Regional Council adopted the MAG 1999 Serious Area Particulate Plan for PM-10. Collectively, the plan contained approximately 77 committed control measures from the State and local governments. It is important to note that all of the commitments received are at least Best Available Control Measures (BACM). In general, BACM are required for significant source categories. However, commitments have been received for insignificant source categories, as well. In addition, commitments have been received in support of the Most Stringent Control Measures, as documented in the plan. On July 9, 1999, the Arizona Department of Environmental Quality submitted the Serious Area Particulate Plan for PM-10 to the Environmental Protection Agency. A completeness finding was then issued by EPA on August 4, 1999.

FIGURE ES-1

# NUMBER OF EXCEEDANCES OF THE ANNUAL PM-10 STANDARD Maricopa County, Arizona

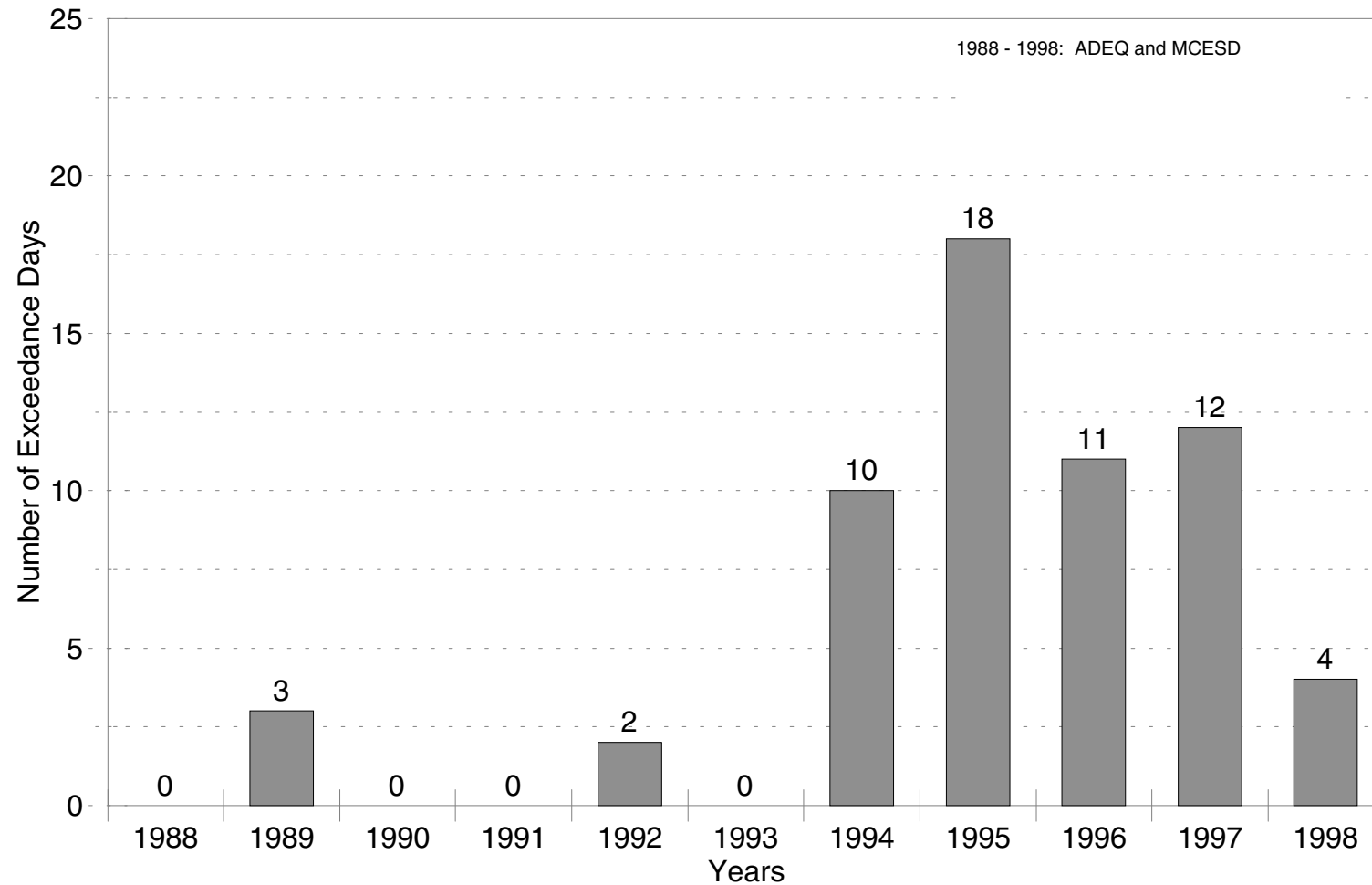


Reported by the Maricopa  
Association of Governments  
April 7, 1999

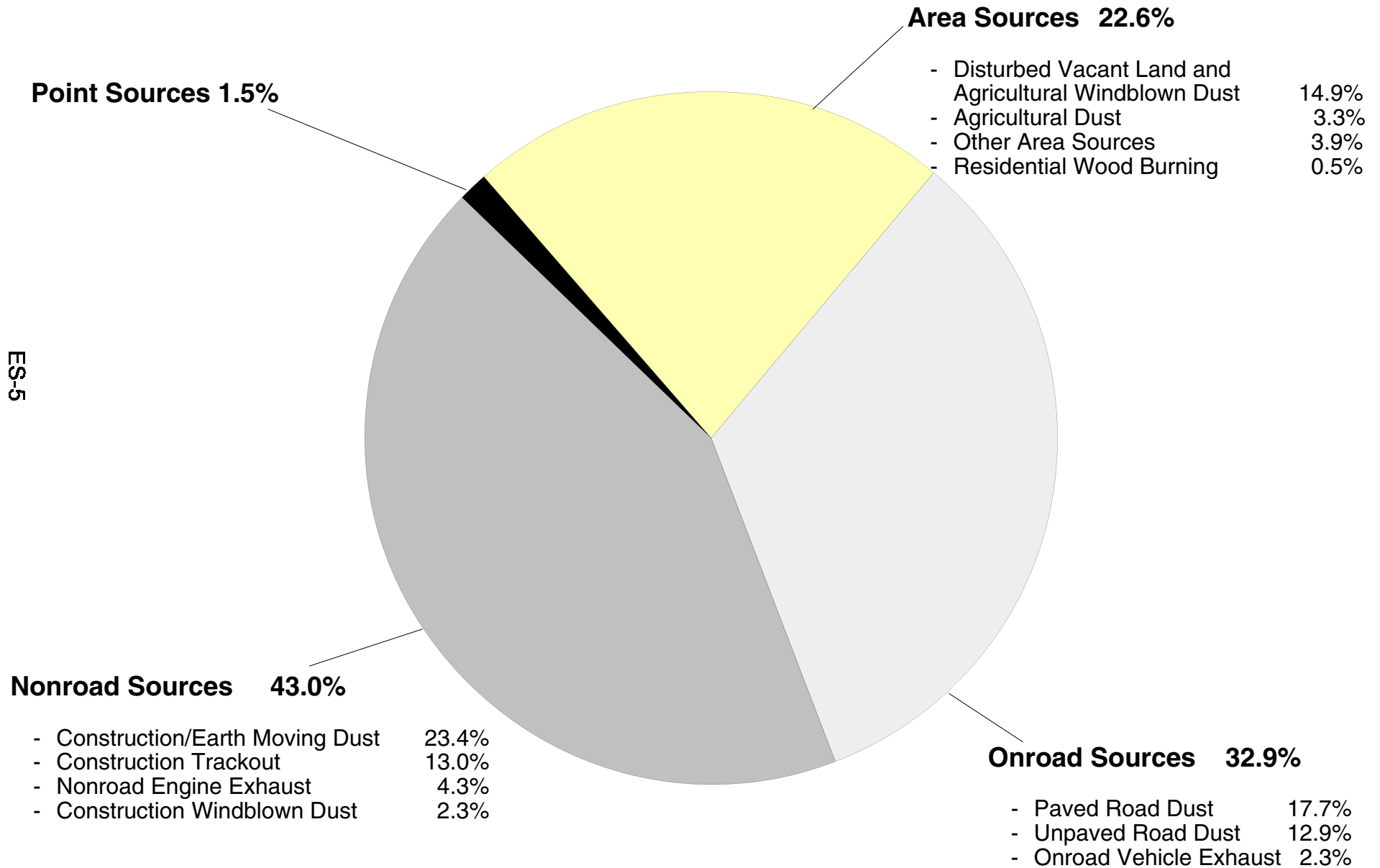
ADEQ data for 1998 not available.

**FIGURE ES-2**

**NUMBER OF 24-HR PM-10 EXCEEDANCE DAYS**  
**Maricopa County, Arizona**



**FIGURE ES-3  
1995 REGIONAL PM-10 EMISSIONS  
(Percent Total Emissions)**



On November 9, 1999, EPA notified MAG by telephone and Arizona Governor, Jane Hull, by letter that there is an approvability problem with the 1999 Serious Area Particulate Plan for PM-10. According to EPA, the approvability problem is that the plan assumes that Maricopa County's two fugitive dust control rules will achieve 90 percent compliance by 2006. EPA believes the compliance rate is unrealistic. In addition, EPA believes that the plan barely addresses dust from paved roads and there is no strategy in the plan for reducing dust on private unpaved roads.

To address the approvability problem, the FY 2000-2004 MAG Transportation Improvement Program (TIP) has been amended to include Maricopa County paving dirt road projects and funding to purchase PM-10 certified street sweepers. It is important to note that the Maricopa County paving projects address unpaved roads including private roads that are publicly maintained. The Resolution to Adopt the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Area includes a commitment from MAG for PM-10 Efficient Street Sweepers. In addition, the Maricopa County Board of Supervisors has submitted a new commitment to address the approvability issues with the County fugitive dust control rules. The commitment includes steps to strengthen the enforcement of the program.

The air quality modeling previously submitted to EPA has been revised to reflect a lower compliance rate (80 percent) for the County dust control rules. The remodeling also includes the paving of unpaved roads (including private roads that are publicly maintained). The revised modeling assumptions for the control measures used for numeric credit are documented in Chapter V of the Technical Support Document. In addition, the attainment demonstration, reasonable further progress analysis, and impracticability demonstration in Chapter VI of the Technical Support Document have been updated to reflect the revised control measure assumptions.

For the attainment demonstration, the initial "modified rollback" analysis has been replaced with the UAM-LC analysis, a more sophisticated modeling approach. The revised air quality modeling analysis supports the previous initial modeling conclusion that attainment by December 31, 2001 is impracticable.

According to the revised air quality modeling, the committed measures are expected to result in attainment of both the 50 micrograms per cubic meter annual average PM-10 standard and the 150 micrograms per cubic meter 24-hour PM-10 standard in 2006. Specifically, the committed measure package results in an annual PM-10 concentration of 49.68 micrograms per cubic meter and a 24-hour PM-10 concentration of 149.3 micrograms per cubic meter in the attainment year of 2006.

The key measures in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 used for the attainment demonstration include: Strengthening and Better Enforcement of Fugitive Dust Control Rules; Reduce Particulate Emissions from Unpaved Roads and Alleys; Reduce Particulate Emissions from Unpaved Parking Lots; Reduce Particulate Emissions from Vacant Disturbed Lots; PM-10 Efficient Street Sweepers; Curbing, Paving, or Stabilizing Shoulders on Paved Roads; Paving, Vegetating, and Chemically Stabilizing Unpaved Access Points Onto Paved Roads; PM-10 Episode Thresholds; Restaurant Charbroiler Controls; Clean Gasoline (long-term and winter fuel reformulation); Pre-1988

Heavy-Duty Diesel Commercial Vehicle Standards; and Coordinate Traffic Signal Systems. The impacts of these measures are depicted in Figure ES-4.

The Revised MAG 1999 Serious Area Particulate Plan for PM-10 also contains contingency measures sufficient to provide emission reductions to off-set one year's reasonable further progress which is 4.6 metric tons per day. Collectively, the impact of the contingency measures is approximately 5.4 metric tons per day.

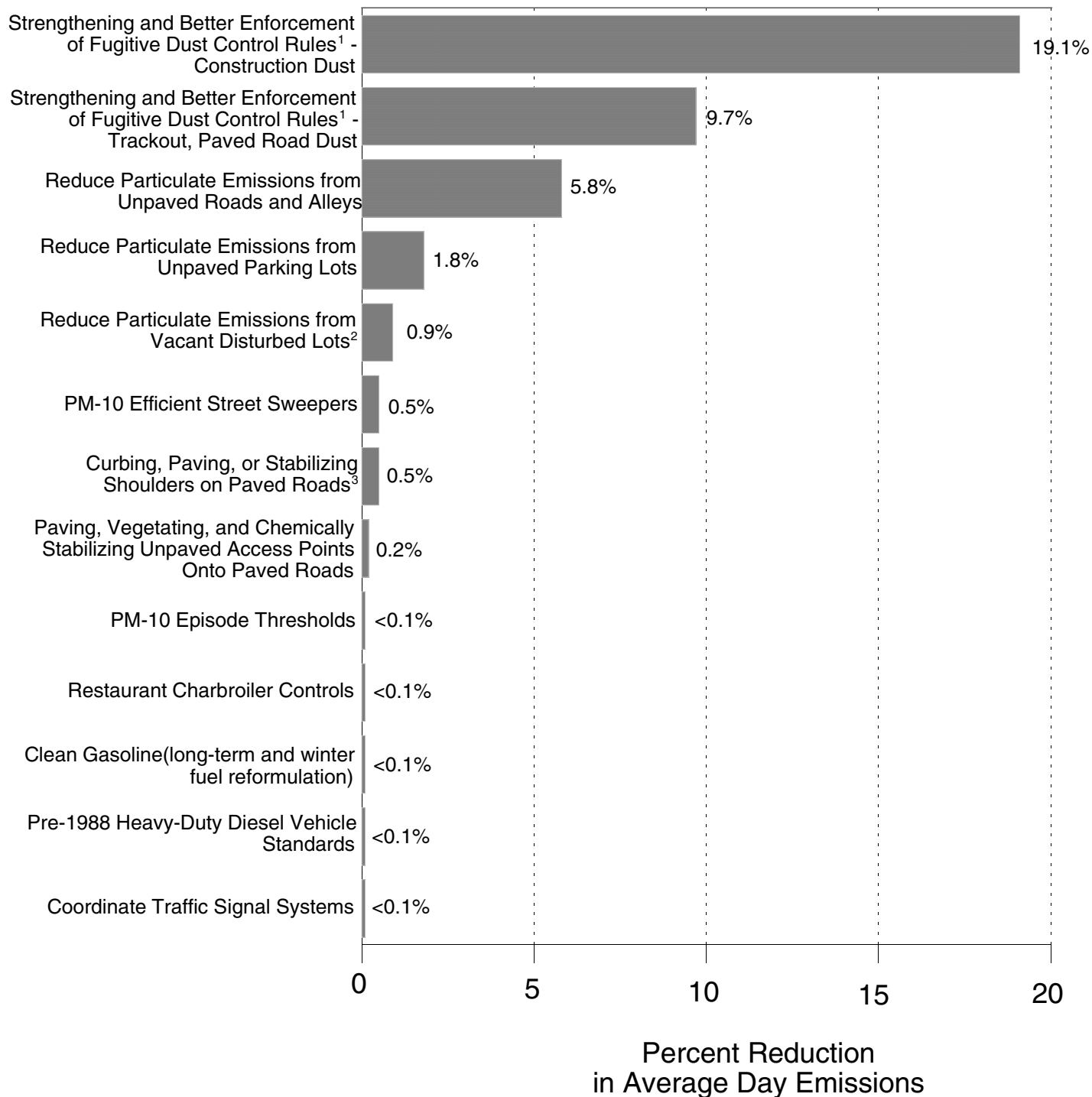
The key contingency measures in the plan are: Agricultural Best Management Practices; Off-Road Vehicle and Engine Standards; Clean Burning Fireplace Ordinances; and Additional Dust Control Measures (Cities of Phoenix and Tempe). The impacts of these measures are depicted in Figure ES-5.

Consequently, the Revised MAG 1999 Serious Area Particulate Plan for PM-10 demonstrates attainment of the annual and 24-hour PM-10 standard by the December 31, 2006 attainment date. The resulting 2006 PM-10 Attainment Emissions are depicted in Figure ES-6. For conformity analyses, the motor vehicle emissions budget includes reentrained dust from travel on paved roads, vehicular exhaust, travel on unpaved roads, and road construction. Together, these emissions comprise the motor vehicle emissions budget for PM-10 of 59.7 metric tons per day.



**FIGURE ES-4**

## 2006 PM-10 Emission Reductions From Committed Control Measures



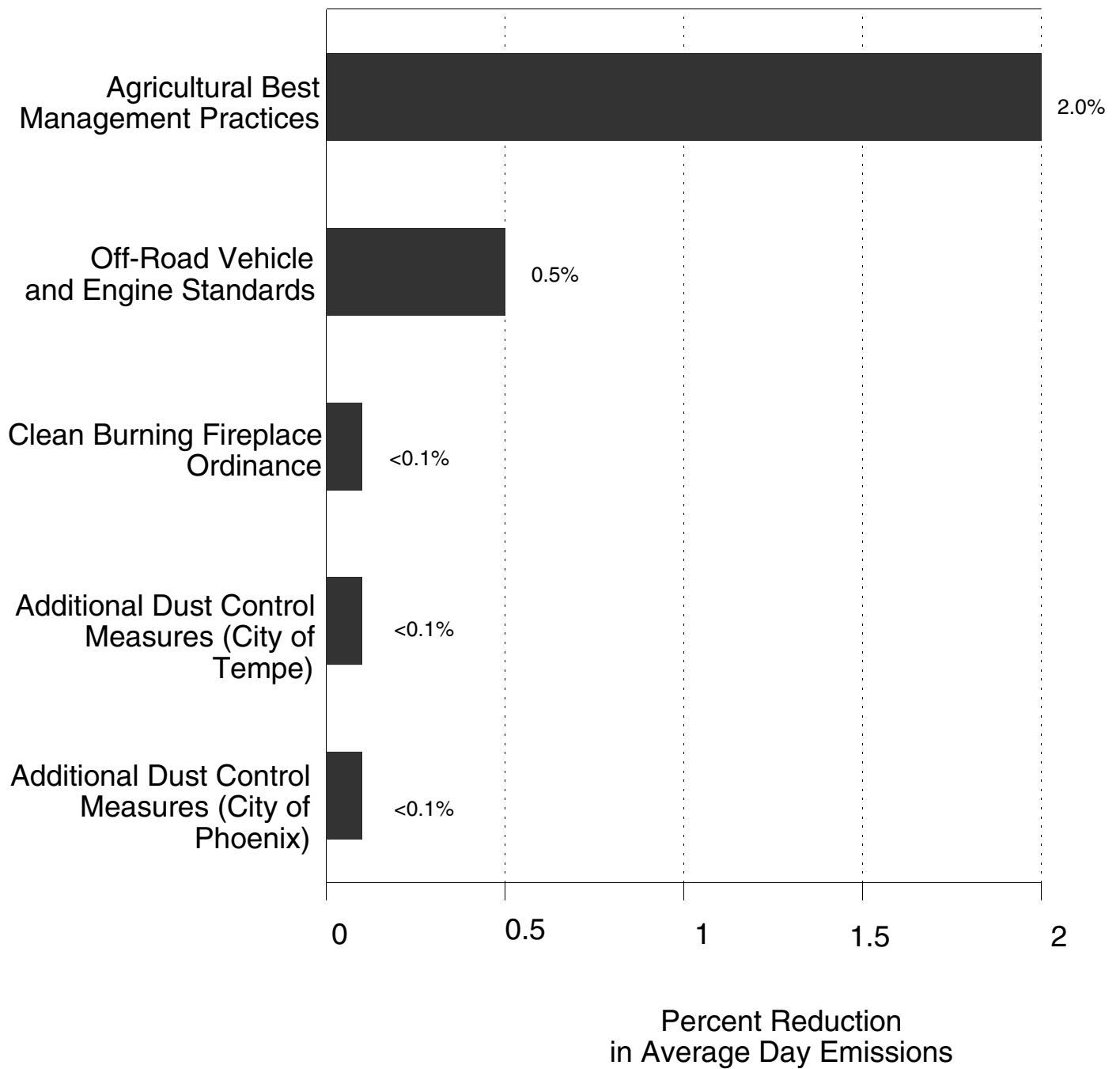
<sup>1</sup>In addition, the emission reduction includes Dust Control Plans for Construction/Land Clearing and Industrial Sites

<sup>2</sup>In addition, the emission reduction includes Dust Abatement and Management Plan for State Lands

<sup>3</sup>In addition, the emission reduction includes Reduce Particulate Emissions from Unpaved Shoulders on Targeted Arterials

**FIGURE ES-5**

**2006 PM-10 Emission Reductions From  
Committed Contingency Measures**



**FIGURE ES-6**  
**2006 REGIONAL PM-10 EMISSIONS**  
**REFLECTING COMMITTED MEASURES**  
**(Percent Total Emissions)**

